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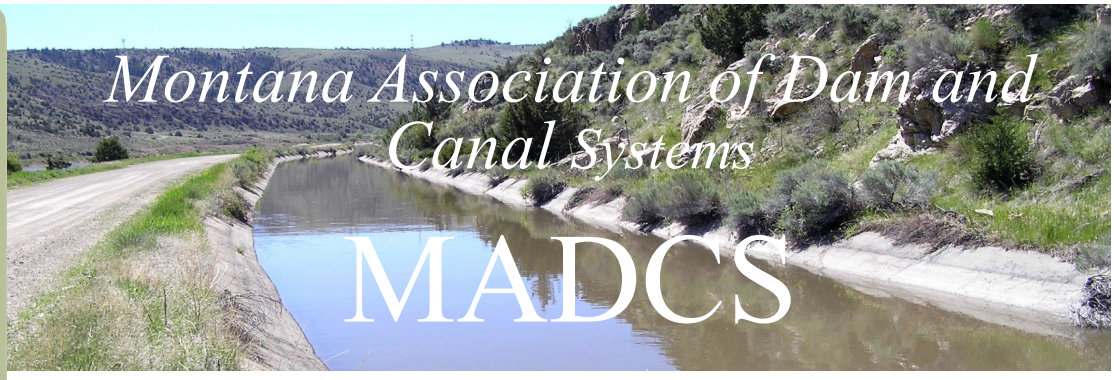



## MONTANA SUPPORTS IRRIGATED AGRICULTURE

SUBMITTED BY ALICE STANLEY, CHIEF RESOURCE DEVELOPMENT BUREAU

*Irrigation is a key component of Montana's economy and the dominant commercial use of Montana's water, accounting for 96% of surface and groundwater withdrawals. We all know how important irrigation is to Montana's agricultural community, but it is also important to people who live in Montana's cities and towns. Not only does irrigation sustain working farms and ranches, it also contributes to the vitality of rural communities. Many irrigation projects store municipal drinking water. System reservoirs can provide recreational opportunity, fish and wildlife habitat, and hydropower. Irrigation systems raise the water table in aquifers used for domestic rural water supplies. And they often support wetlands and reduce the risk of floods.*

*The State of Montana recognizes the value of irrigation to Montana through grant and loan programs offered by the Montana Department of Natural Resources and Conservation. I hope you can take advantage of some of the programs listed below. And keep up the good work!*

Alice Stanley, DNRC Resource Development Bureau
astanley@mt.gov
406-444-6687

### IRRIGATION DEVELOPMENT GRANT PROGRAM

The irrigation development grant program was created to increase the value of irrigated cropland while preserving natural resources and the environment for future generations. This program will provide $100,000 in grants each year for the two-year period of July 1, 2015 through June 30, 2017.

### *Types of projects*

- recently funded through this program are:
- flow measurement device installation, workshops, and tracking software,
- project feasibility assessments and project planning and design
- ditch, head gate, and canal lining repairs
- community gardens and Farm-to-Table school programs
- floodplain study for head gate placement, basin-wide water use plans

### *Who can Apply*

Grants are available up to $20,000 to private, nonprofit, for profit associations and individuals. Also to government entities such as counties, irrigation districts and conservation districts. Nongovernment entities must provide a match of at least 75% of the cost of the project or a minimum of 3 X the value of the grant. Match can be met with other grants, loans, or other sources of funds, and contributed labor and materials. No match is required for projects undertaken by government entities.

### *How to Apply*

Because funding for this program has been reduced, irrigation development grants will no longer be issued on a first-come, first-served basis. Instead, applications may be submitted until **July 31, 2015**. At that time, projects will be compared and ranked. The irrigation development grant program will fund projects to this first pool of applicants in ranked order as funding allows. Grants will be awarded August 15, 2015. Additional application deadlines will be announced depending on demand and funding availability. Submit applications on line at www.fundingmt.org

***Applications will be ranked*** based on clarity of the application, renewable resource benefits, the degree to which the project increases the value of cropland, and the degree to which the applicant contributes to the cost of the project.

***For more information contact*** Ann Kulczyk, IDG Program Manager
406-228-4129
akulczyk@mt.gov

### PRIVATE GRANT AND LOAN PROGRAM

DNRC offers loans and small grants to private for-profit and private non-profit groups and individuals. These are available at any time and have no deadline.

***The private grant program*** supports water projects that benefit or develop a water resource, and are recommended or required by a government entity such as a county, conservation district or state agency. Examples of private grants to irrigators include installation of mandated flow measuring devises, dam safety inspections, conservation measures agreed upon in a watershed management plan, and other watershed management activities. These grants are available for up to $5,000 and must be matched by at least 75% of the cost of the project or a minimum of 3 X the value of the grant.

***Loans to nongovernment entities*** for water projects are available in amounts up to $400,000 for individuals and $3 million for water user associations and ditch companies. The most common type of projects funded through private loans are irrigation system improvements such as conversion from flood to sprinkler irrigation.

***For more information contact*** Bill Herbolich
406-444-6686
wherbolich@mt.gov

### RENEWABLE RESOURCE PLANNING GRANTS

These grants are available for up to $10,000 and pay for contracted engineering or technical consultant services needed for planning or designing activities that will lead to a renewable resource grant application. Planning grant applications will be compared and ranked and are due **July 1, 2015** and **September 25, 2015**. Ranking criteria is: clarity of the application, renewable resource and public benefits, and immediacy and magnitude of the need for the project. Submit applications on line at www.fundingmt.org

***For more information contact*** Pam Smith
406-444-6839
pamsmith@mt.gov

*More information about each of these programs is available at the DNRC website*:
http://dnrc.mt.gov
Click on "grants and loans"

# IPG® AQUAMASTER® GEOMEMBRANES CERTIFIED TO NSF/ANSI-61 BY THE PUBLIC HEALTH AND SAFETY ORGANIZATION

Submitted by, Raphael Bennett, Marketing Manager ECP Division

MONTREAL, QUEBEC and SARASOTA, FLORIDA (June 22, 2015) – The Public Health and Safety Organization has certified IPG's Aquamaster line of geomembranes to NSF/ANSI 61. ANSI 61 is a certification by the National Sanitation Foundation given to products which fulfill the regulatory requirements for potable water transport in the US and Canada.

IPG offers a range of durable geomembrane products for lining and directing water flow in retention ponds, canals, catch basins, ditches and other water holding areas. Aquamaster geomembranes are also used extensively in industrial applications such as conventional and non-conventional oil and gas extraction, above ground tank liners, evaporative ponds and other applications where a high strength, durable barrier is needed, and impoundments. These woven coated fabric geomembrane liners are made with exclusive polyolefin coatings for maximum toughness and abrasion resistance.

Certified to NSF/ANSI 61

IPG's Aquamaster geomembrane portfolio is comprised of two product families: NovaLiner™ for short term applications with shorter warranties, and ArmorLiner™ for more demanding applications with longer warranty coverage.

Aquamaster geomembrane composition and materials were reviewed and rigorously tested by the NSF for potential contaminants and water leaching. IPG's Truro, NS manufacturing facility was audited to verify that proper controls were in place to prevent any contamination of the geomembranes, as well as the materials. Moving forward, this inspection will be done on a yearly basis in order to maintain the certification.

"This NSF certification is a real game changer that allows us to expand our Aquamaster line into new markets, while giving the customer the confidence that our products are meeting the highest standards of potable water. This shows that we have a real commitment to safe and clean drinking water, as well as the environment," states David Martin, IPG Product Manager.

For more information regarding the IPG's geomembrane solutions or other engineered coated products, please contact Raphael Bennett, ECP Marketing Manager, at rbennett@itape.com.

## About Intertape Polymer Group® Inc.

Intertape Polymer Group® Inc. is a recognized leader in the development, manufacture and sale of a variety of paper and film based pressure-sensitive and water-activated tapes, polyethylene and specialized polyolefin films, woven coated fabrics and complementary packaging systems for industrial and retail use. Headquartered in Montreal, Quebec and Sarasota, Florida, the Company employs approximately 1,950 employees with operations in 16 locations, including 11 manufacturing facilities in North America and one in Europe.

## About NSF International

NSF International is an independent global organization that writes standards, and tests and certifies products for the construction, food, water, health sciences and consumer goods industries to minimize adverse health effects and protect the environment (nsf.org). Founded in 1944, NSF is committed to protecting human health and safety worldwide. Operating in more than 150 countries, NSF International is accredited by the American National Standards Institute (ANSI) and is a Pan American Health Organization/World Health Organization Collaborating Center on Food Safety, Water Quality and Indoor Environment.

# Metal Fabricated Ramp Flumes

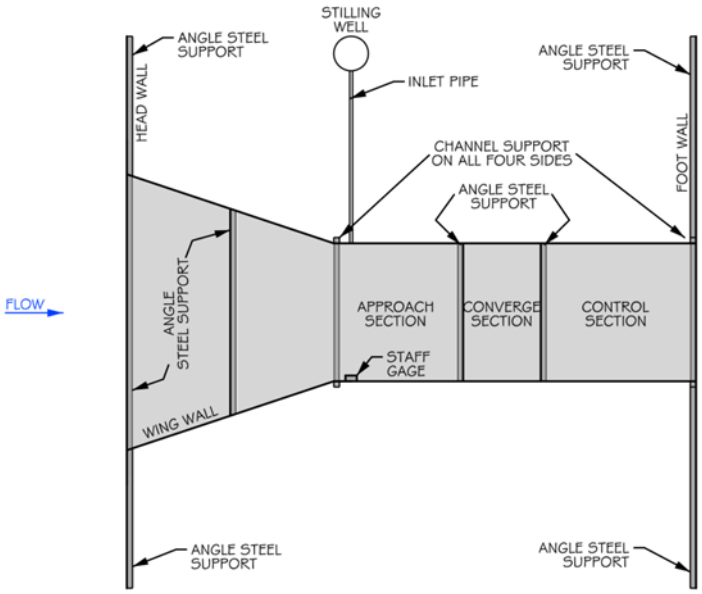
Submitted by Ed Everaert, PE, Senior Project Manager, WWC Engineering

## Introduction to Ramp Flumes

The term long-throated flume or commonly known as Ramp Flume describes a broad class of critical-flow flumes and broad-crested weir devices designed and installed in open channels to measure the flow of water. The Ramp Flume components consist of an inlet section, approach section, converging transition section with sloped ramp on floor, throat or control section with raised ramp, and diverging transition/tail-water section. The Ramp Flume should have an upstream and downstream cutoff wall incorporated into the design.

## Ramp Flume Site Analysis

The desired location(s) of the ramp flume(s) within the irrigation project needs to be determined by the irrigation project staff. The existing canal prism dimensions then need to be measured and provided to the engineer designing the ramp flume. The maximum flow capacity for the ramp flume also needs to be provided to the engineer.




RAMP FLUME - PLAN VIEW

## Ramp Flume Design Alternatives

The Bureau of Reclamation WinFlume software is utilized for the design of the ramp flume for the specified open channel site. The canal dimensions and properties, flume geometry, dimensions, and flow capacity are input into the Winflume software. Design iterations are conducted until all the Ramp Flume design requirements are met and the final Ramp Flume design is completed. Then a Ramp Flume design drawing, reports, rating table, and staff gage can be printed using the WinFlume software. A Ramp Flume can be constructed with metal, concrete, or a combination of metal and concrete. Metal Ramp Flumes generally cost significantly less and are easier to fabricate and install.

## Fabricating and Installing Ramp Flumes

The engineer provides the metal fabricator selected for the project with the engineering drawings for the site specific Ramp Flume. Typical materials utilized for a metal Ramp Flume are 3/16 to 3/8 inch thick cold galvanized mild steel plates, angle iron and/or structural steel tubing for supports, and welding supplies. The fabrication of a metal ramp flume should be performed by a qualified metal fabricator. The installation of the Ramp Flume can be done by a qualified contractor or the irrigation project staff. The metal wing walls, headwall, and footwall can be installed and welded to the main Ramp Flume section at the project site. A critical item is that the metal Ramp Flume is installed level and meets the existing canal floor elevation at the inlet and tail-water sections. The next step is to place compacted backfill around the outer perimeter of the Ramp Flume wing walls, headwall, and footwall. The staff gage is installed at the location specified in the WinFlume software along with connecting the stilling well inlet pipe to the Ramp Flume sidewall port.

**Metal Fabricated Ramp Flumes, cont.**

DMWUA 60 cfs Ramp Flume Inlet View

DMWUA 60 cfs Ramp Flume Inlet View

The Ramp Flume design provides the following numerous advantages over traditional weirs or flumes for open channels:

1. **SUBMERGENCE –** Up to 90% submergence allowed while still providing accurate flow measurement. No submergence is allowed for sharp crested weirs and only some submergence is allowed for Parshall flumes, cutthroat flumes, and H-flumes.
2. **FLOW CALIBRATION –** Flow is calibrated using the WinFlume software and well established hydraulic theory. Sharp crested weirs, cutthroat flumes, H-flumes, and Parshall flumes require laboratory flow calibration. Site specific Ramp Flume flow rating tables provided by WinFlume software are accurate within 2%. One staff gage and stilling well for automated stage/discharge measurements is required for the Ramp Flume. Parshall and some other flumes require two staff gages and stilling wells for accurate flow measurement readings.
3. **DESIGN –** The throat section of the Ramp Flume can be any shape in the direction perpendicular to the flow allowing for complete range of discharges to be measured with optimal precision. Design of the Ramp Flume is adaptable to existing open channel dimensions versus the standard incremental fixed widths for other flumes and weirs.
4. **HEAD LOSS –** The head loss through a Ramp Flume is minimal and the lowest of any flume or weir.
5. **FLOATING DEBRIS/SEDIMENT –** The passing of floating debris and sediment through a Ramp Flume is optimized due to the design and flow properties of the converging transition section and minimal head loss.
6. **COST –** The cost of fabrication and installing a metal ramp flume is very economical when compared to other flumes and weirs.

DMWUA 60 cfs Ramp Flume Inlet View

DMWUA 60 cfs Ramp Flume Outlet View

# NOTICE

The Board of Directors has elected to end the mailing out of newsletters to save on cost and resources. From this time forward newsletters will be produced and sent out on email, and can also can be found on the website. If you want to be added to the email list please contact Sharon at sharonfoster@mt.net

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